Mr. Michael T. Davis Algebra II – Delta & Eta	Review Problem Set for Unit 2 Test – Linear Functions December 8, 2014
Name:	

1. A line contains two points $A(-3,1)$ and $B(2,11)$.

   a. Determine the slope of the line.

   b. Determine an equation of the line in slope-intercept form.

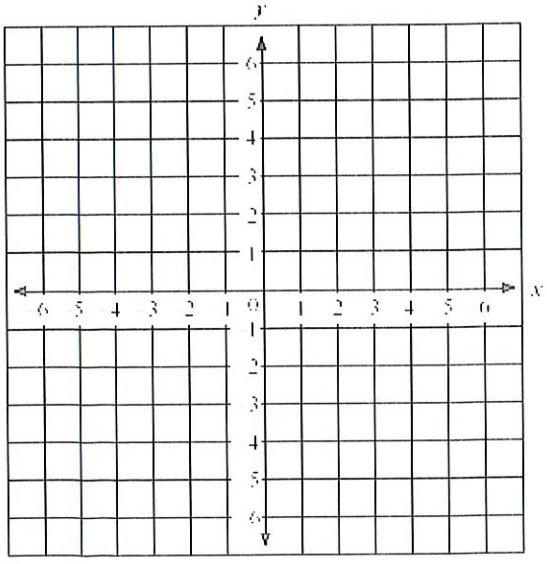
   c. Determine the coordinates of the x-intercept of the line.

   d. Give the coordinates of the y-intercept of the line.

   e. Convert the equation found in part (b.) above to standard form.

2. Graph the line with equation $y = \frac{1}{2}x - 3$

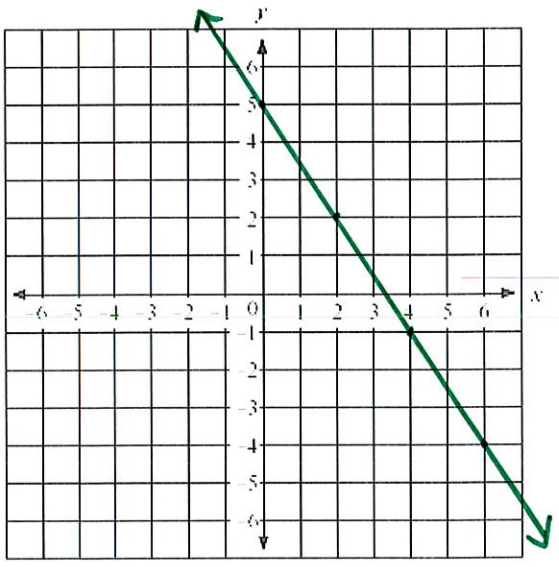
   What is the slope of the line?



3. A line contains two points $P(2,3)$ and $T(7,3)$. Determine an equation for the line.

4. Solve the literal equation $Ax + By = C$ for y n

5. Write an equation for the line shown in slope-intercept form. Then convert to standard form.



6. A line contains two points $M(-1,5)$ and $N(-1,-4)$. Determine an equation for the line.

7. Find an equation of the line with slope $m = 3$ and y-intercept $P(-7,1)$.

8. Solve the literal equation $A = 2\pi r^2 + 2\pi rh$ for h.

9. Find an equation of the line with slope $m = \frac{5}{3}$ and y-intercept $b = -10$

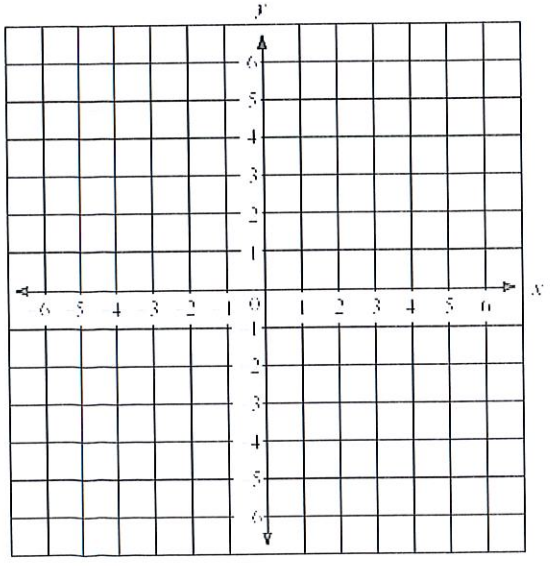
10. Kayla gets in her cab and notices the initial up-front fee on the meter. After 2 minutes, the meter reads $7.50 and after 7 minutes, the meter reads $13.75.

    a. What is the rate of change in this scenario?

    b. What is the equation or rule or formula that gives the cab fare as a function of time?

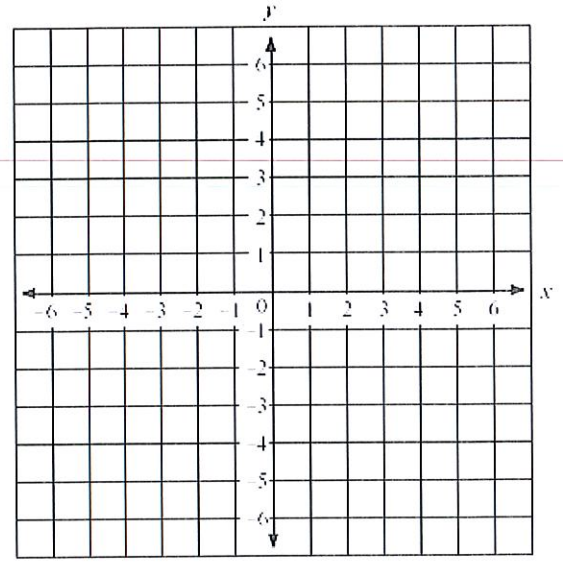
    c. How much would a 15-minute cab ride cost?

11. Graph the line with equation $y = x$
    What is the slope of the line?



12. Determine an equation of the line that contains the point $P\left(-5,2\right)$ and is parallel to the line with equation $2x-3y=-6$.

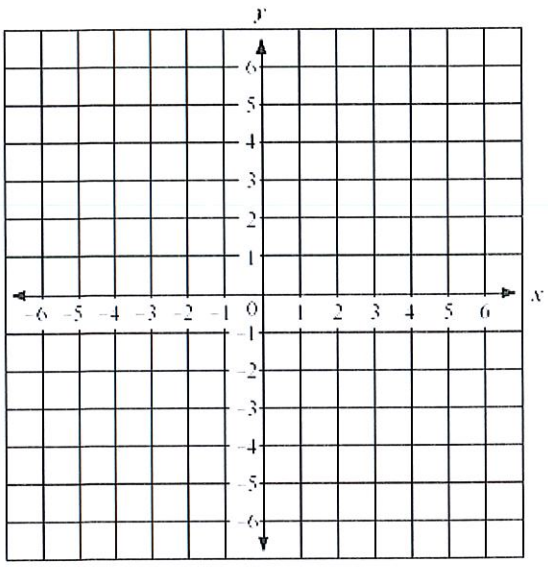
13. Graph the line with equation $y=-4$
What is the slope of the line?



14. Solve the literal equation $P=2\left(l+w\right)$ for w.

15. Determine an equation of the line that contains the point $P\left(-1,-5\right)$ and is perpendicular to the line with equation $8x-2y=5$.

16. Graph the line with equation $x = 1$
What is the slope of this line?



17. Determine which tables contain data representing a proportional relationship.

a.

x	y
3	1
6	2
9	3
12	4
15	5

b.

X	y
1	3
2	5
3	7
4	9
5	11

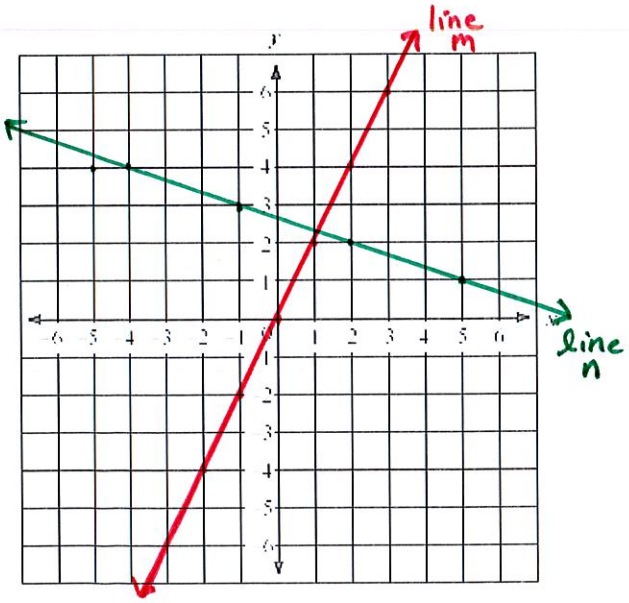
c.

x	y
-1	1
-2	2
-3	3
-4	4
-5	5

d.

x	y
-4	-10
-2	-5
0	0
2	5
4	10

18. Write an equation for each line shown.



19. Write a rule or equation or formula for the linear sequence $-26, -20, -14, -8, \ldots$

20. A water pump can remove water from a pool at a constant rate. 84 gallons are removed in 4 minutes and 189 gallons are removed in 9 minutes.

    a. What is the rate in gallons per minute at which the water is being pumped out of the pool?

    b. What is a rule or equation or formula that represents the amount of water being pumped out as a function of time?

    c. How many gallons are pumped out after one hour?

    d. Do these data represent a proportional relationship?

21. A sequence is defined by the formula $u_n = 6n - 2$.

    a. Calculate the first 4 terms of the sequence.

    b. What is the difference between successive terms of the sequence?

    c. What is the 0^{th} term of the sequence?

    d. What is the slope or rate of change of the sequence of numbers?

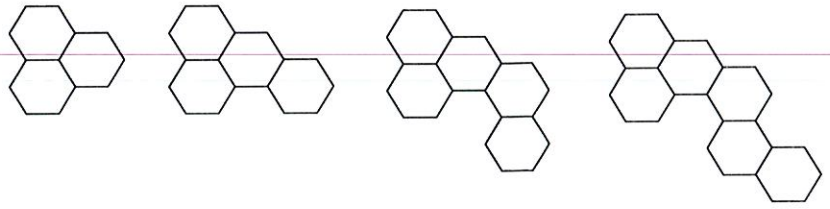
    e. What is the 20^{th} term of the sequence?

22. Considering the number of line segments in each drawing or term,

a. what is the rate of change in the sequence of drawings?

b. Write a formula that represents the pattern.

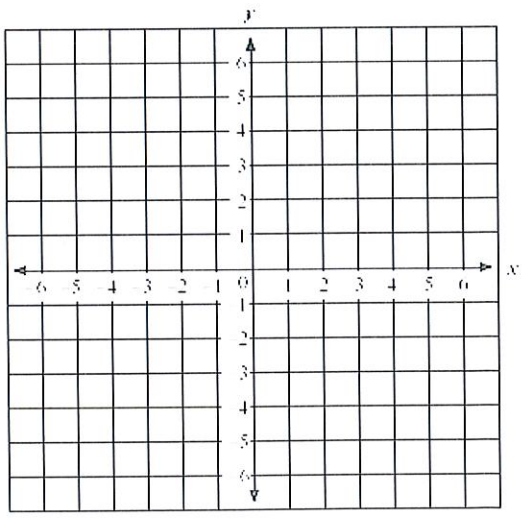
c. How many line segments would be in the 20^{th} drawing or term?

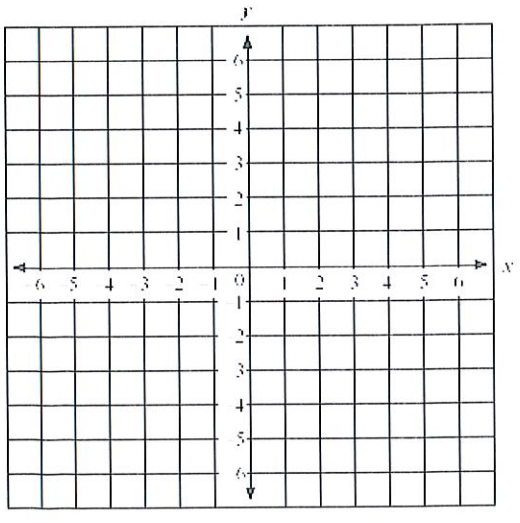


23. Draw a graph of each piecewise function defined below:

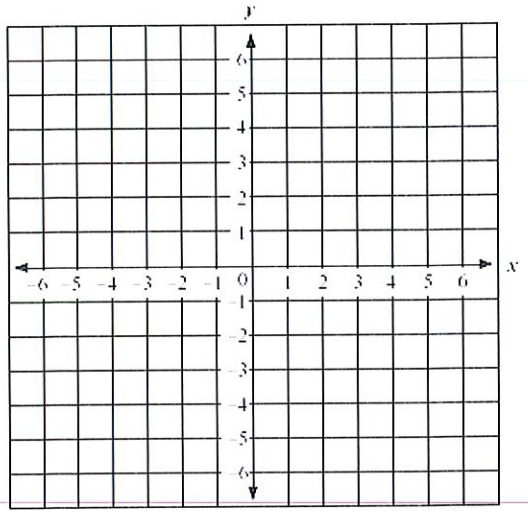
a. $f(x)=\begin{cases} x+3 \text{ if } [-4,1) \\ 4 \text{ if } [1,5] \end{cases}$

b. $f(x)=\begin{cases} -x+1 \text{ if } (-3,2] \\ 3x-7 \text{ if } (2,\infty] \end{cases}$



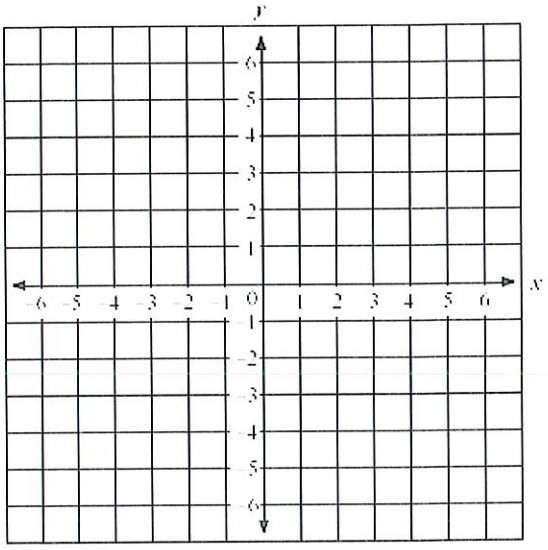


24. Carefully finish drawing the rectangle using slopes and given the information displayed in the graph shown. Write the coordinates of the fourth vertex or corner that you found.



25. Graph the line with equation $y = -x$

What is the slope of the line?



26. Solve the system of two equations by graphing.

$4x + y = 3$ & $x - 4y = -12$